



# Department of Environmental Protection

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## McGilpin Road Private Wells Study Sturbridge, MA

### **Background**

In early 2017, MassDEP was notified that citizen testing on McGilpin Road had indicated the presence of 1,4-dioxane in one private well. MassDEP subsequently conducted drinking water well sampling to confirm the presence of 1,4-dioxane and other possible contaminants of concern, including lead, that may be affecting drinking water wells on McGilpin Road, and launched a multi-faceted investigation to investigate possible sources in addition to the landfill including local geology, home plumbing, and possible neighborhood sources such as properties on which visible solid waste was observed. To date, the Department has committed over \$200,000 to the investigation of contamination and mitigation of exposure to possible contaminants of concern on McGilpin Road in Sturbridge.

### **Sampling**

MassDEP began its investigation by sampling 11 homes within 500 feet of the original home with the 1,4-dioxane detection (this included resampling at the original home). Results from these 11 homes showed a high presence of lead in the water and so lead became a contaminant of concern in addition to 1,4-dioxane. MassDEP continued to work outward in 500 foot intervals from the homes with lead detected in the water, testing for lead and 1,4-dioxane as well as VOCs along McGilpin Road until we achieved non-detects for these contaminants and/or we reached municipal water. In total, MassDEP sampled 44 private bedrock wells at least twice and up to three times between January and June in 2017. Samples were collected at up to three locations at each residence: directly from the well, from the pressure tank and from the kitchen faucet. MassDEP immediately provided bottled water to all residents who had any detections of lead and/or 1,4-dioxane in their wells.

### **Data Analysis**

By mid-summer, MassDEP had compiled a significant amount of sampling data for review and analysis. Reported concentrations of lead ranged from below the reporting level, < 1 µg/L, up to 880 µg/L. No water samples collected directly from a well had a concentration of lead greater than 15 µg/L, which is the Federal Action Level for lead. In contrast, samples collected from within the domestic plumbing system at residences on McGilpin Rd and Fiske Hill Rd more frequently had concentrations of lead greater than 15 µg/L. Other than 1,4-dioxane and lead, MassDEP's sampling revealed no other detections of the contaminants sampled for.

MassDEP consulted with both the Massachusetts State Geologist and the U.S. Geological Survey, New England Water Science Center (USGS) to analyze the data. The USGS tabulated MassDEP's Data here:

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

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Table 1.					
Sample Collection Port	Number of samples	Percent of samples with lead greater than 1 µg/L	Percent of samples with lead greater than 15µg/L	Median concentration of Lead (µg/L)	Maximum concentration of Lead (µg/L)
Directly from the well	24	46%	0	< 1	6.6
Spigot near pressure tank (Pre)	97	40%	50%	15	880
Point of use faucet (Post)	93	23%	5%	< 1	54

### Next steps

- USGS Study**-MassDEP seeks to collaborate with the USGS to undertake a more detailed study of lead in private wells in the McGilpin Road area. The objectives of the proposal are to evaluate whether private wells on McGilpin Road and Fiske Hill Road have a significantly higher rate of concentrations of lead compared to other private wells in the same bedrock unit. The study will compare isotopic signatures of both lead and strontium from water and particulates collected directly from the wells to the water and particulates collected from within the homes' plumbing systems to determine whether lead concentrations are related to water corrosivity. Corrosion of plumbing and fixtures from corrosive water would implicate the plumbing system as the source of lead. MassDEP and the USGS will be working together to finalize the study's scope of work and implement it, pending USGS approval. The proposed study will be co-funded by MassDEP and USGS at a total cost of \$184,800. MassDEP will pay 60% of the cost at \$111,500, and the USGS will pay the remaining 40% at \$73,300. The project is anticipated to be completed by September 2019, or earlier.
- 1,4-dioxane:** Based on our hypothesis that lead may likely be coming from the domestic plumbing, additional analysis of potential sources in the area for the 1,4-dioxane is needed. This assessment would include sampling of septic systems and drinking water wells to determine if 1,4-dioxane and other compounds that may be commonly found in septic systems from its presence in many consumer products are affecting drinking water wells. This approach is consistent with work done in the Town of Eastham to differentiate between wells affected by the Town's closed landfill and those affected by septic systems. MassDEP's sampling in Sturbridge has not shown any 1,4-dioxane contamination above the drinking water guideline.
- Additional Landfill Assessment:** With Casella's decision to forego an expansion and close the Southbridge landfill, MassDEP regulations require the landfill owner/operator to submit a Comprehensive Site Assessment, assessing the full nature and extent of any contamination coming from the landfill. MassDEP will be working with Casella in the coming months to define the scope of additional testing at the landfill, including the addition of monitoring wells. In the interim, MassDEP is also working with our contractors to develop a scope of work for conducting a geophysical survey and installation of deep bedrock wells, if needed. This contract can be executed in the future if additional monitoring is determined necessary.
- Follow up sampling:** MassDEP expects to conduct follow-up sampling at residences along McGilpin Road next summer. Until then, bottled water will be provided to residents who wish to continue receiving it.